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CEREAL DISEASES

BACTERIAL WILT OF SWEET CORN (APLANOBACTER STEWARTII)

An outstanding feature in regard to bacterial wilt of sweet corn this year is its appearance in epidemic form in southwestern Ontario, where it had not previously been known to occur, in fact, this seems to be the first report for Canada. In New York only isolated cases had occurred outside of the southern tier of counties, but this year, according to Dr. Chupp's report quoted in the preceding issue of the Reporter (p. 134), it is rather common along Lake Erie in Chautauqua and Erie Counties, as far north as Buffalo.

In Illinois according to Dr. Benj. Koehler, the disease has caused considerable trouble in field corn also.

Dr. A. G. Johnson of the Division of Cereal Investigations made the following observations during a recent trip: Considerable bacterial wilt was seen on sweet corn at Rochelle, Illinois, August 9. The Midwest Canning Company has about 3,000 acres of Golden Bantam sweet corn there, and about 500 acres of it was very badly affected with bacterial wilt. The loss in this 500 acres was estimated at 30 per cent. For the entire 3,000 acres the loss on an average was about 10 to 15 per cent. At Bloomington, Illinois, on August 9, considerable bacterial wilt was occurring in Dr. J. R. Holbert's experimental plots of field corn. Some strains were highly susceptible, others moderately so, while still others seemed to be highly resistant.

An abundance of the disease was observed on Golden Bantam at Lafayette, Indiana, August 10.

Bacterial wilt was especially severe again this summer on various strains of Golden Bantam sweet corn at Arlington Farm. One of the most resistant strains seemed to be Mr. Glen M. Smith's hybrid Golden Cross Bantam.

Some additional reports from various States and some notes from Ontario are quoted below:

ONTARIO

On July 23 G. H. Berkeley wrote: This year we have what appears to be a considerable outbreak of Stewart's disease of sweet corn. This is the first time that this disease has been reported for Canada and it seems to be fairly widespread in certain sections of Ontario. Also from observation it would appear as though the early sown seed has suffered the most. There seems to be no doubt but that the disease has been imported by means of infected seed. On August 22 he reported: Stewart's disease is present in Essex, Kent, and Norfolk Counties, which are in southwestern Ontario. The disease has not been found in eastern Ontario.

I. L. Conners wrote on August 6: This is the first year we have ever had an epidemic of this disease, as far as we know. In a report on his findings made July 8, Dr. G. H. Berkeley says that "I find the disease very general in sweet corn plantings around Chatham, Essex, and Cottam. In the Chatham district every plantation visited showed the disease percentage counts varied from 6 to 50 per cent. In Cottam one plantation showed 70 per cent." These districts are in the counties of Essex and Kent, the southernmost counties of Ontario.

The problem of obtaining healthy seed next year is serious with us, as we rely primarily for seed from the United States. However, seed could be produced here if there were a demand, but the seedmen can buy United States seed cheaper than we could grow it here.

NEW JERSEY

W. H. Martin

We have had a number of reports of this disease in the state this year and in our experimental blocks here at New Brunswick some varieties show as much as 100 per cent infection. In this connection I should say that, in my opinion, the disease is no more prevalent this year than it was in 1930 when it was reported in almost every planting of sweet corn in the state. In that year we had many more complaints concerning the trouble than we have had this season.

I might say also that Dr. Haenseler of this Department has started some work on this disease this year. In a test including some twenty-

four varieties he found that some were much more resistant than others and he is now conducting some breeding experiments with the more resistant ones. (August 29).

WEST VIRGINIA

C. R. Orton

This disease has been in epidemic form for the past two or three years in West Virginia and we started to do some work upon it in 1930. We found immediately that it was complicated by the presence of Rosen's Bacterium dissolvens but since we have a project on soft rot organisms we have concentrated our attention on this phase of the problem and will leave Stewart's organism out of the picture, although it is unquestionably very important. We have shown that Bacterium dissolvens is a type of Bacillus carotovorus but we are still in the dark as to its method of infection although it apparently lives in the soil and recurs in serious form whenever such soil is planted again to sweet corn. I think it is safe to say that throughout the western half of West Virginia both of these organisms are generally present and have caused considerable loss during the past two or three years. You will find a brief report of our work in the last abstracts in Phytopathology. (Vol. 22, p. 26. Jan. 1932). (August 25).

PENNSYLVANIA

George L. Zundel

We still continue to find wilt of corn. In one field of about two acres of flint corn in western Pike county, there was observed to be about 85 per cent wilt. It was interesting to note that the portion of the field that had been treated with acid phosphate had considerably more wilt than where barnyard manure had been applied. I do not know whether the fertilizer had anything to do with this or not. (August 3).

OAT SMUTS IN NORTH CAROLINA

S. G. Lehman

During the spring and early summer months just past oat smut specimens were received from a total of 85 fields. These were in part collected by myself, but the majority were sent in by county agents. Of these collections 85.8 per cent were loose smut (Ustilago avenae) and 5.8 per cent covered smut (U. levis), while 8.4 per cent of the collections contained heads of both loose and covered smut.

In most of the loose smut collections, the glumes were only partially destroyed and in some instances macroscopic determination of the

type of smut was open to question because of the comparatively slight destruction of the flower coverings on the loose smut specimens. In all questionable cases, determination of the type of smut was made on the basis of the rough or smooth character of the spores.

In most instances the variety name of the oat was unknown, but Fulghum was given by the sender as the name for 22 of the 85 collections. Two of the 22 Fulghum collections represented covered smut; the rest, loose smut.

Possibly the incomplete destruction of the glumes by the loose smut fungus indicates resistance in Fulghum, a variety formerly thought to be markedly resistant to smut. This interpretation is suggested by the fact that the 3 collections received of the Burt variety showed complete or practically complete destruction of glumes, while Fulghum collections showed only partial destruction of the glumes. (August 12).

BARLEY SCAB IN IOWA AND ILLINOIS

J. G. Dickson, in the Cereal Courier for August 25, page 179, says that: "Barley scab has been very prevalent in central and southern Iowa and in sections of northern Illinois. Over 60 per cent of the threshed samples collected in this area by the Bureau of Agricultural Economics have graded sample grade owing to Gibberella. The damage is not so severe as in 1928, but sufficient scab is present to cause vomiting and feeding disturbances in hogs."

V E G E T A B L E D I S E A S E S

MYCOSPHAERELLA WILT OF MELONS IN NEW YORK

Charles Chupp

All the melon growers in the Eden Valley section were reporting serious losses of their crop by sudden dying of the plants caused by Mycosphaerella citrullina. The loss for this district according to estimates made in a one-day survey will be 15 to 20 per cent, with some fields being almost a complete loss. The worst infection probably was in one field of Bender melons, which had been transplanted unusually early while the soil was still muddy. On all the other farms the most serious infection was on the variety Sherman's Delicious. This seed apparently all came from one source. It is not known whether this variety is more susceptible than the Bender, or whether the seed was infected. Where the two varieties were grown in the same field the Benders were more affected than when grown alone, excepting in the

first field mentioned above. On one farm where the grower had practiced seed selection, his crop of Benders were of unusual quantity with only a few diseased hills in a two-acre field.

The disease affects stems, leaves, and fruit although found very sparingly on the leaves and fruits. The stem swells in diameter two to three times normal size, for a distance of two inches to a foot mostly near the base. The epidermis apparently lifts and becomes a bleached white. The stem then cracks longitudinally and becomes much roughened. In the white areas the black pycnidia appear sparingly. Dirty white to brownish circular or angular spots occur on the leaf, with occasionally a spot showing a few pycnidia. Rather large watersoaked spots occur rarely on the fruit, and finally cause cracking into which other fungi penetrate. (August 15).

TOMATO DISEASES IN ARKANSAS

In a recent trip to the vicinity of Gentry, Arkansas, V. H. Young noted very severe disease conditions in fields of canning tomatoes. Early blight (Alternaria solani) seemed to be by far the most serious. Many fields were being defoliated to such an extent that they were almost a total loss, mainly from extreme sunburn. The disease was causing stem lesions also. Of other diseases, wilt (Fusarium lycopersici) did not seem to be so important as the land is comparatively new. Leaf blight (Septoria lycopersici) was not yet important but seemed to be well started. A few cases of bacterial canker (Aplanobacter michiganense) were seen. Last year was the first time this disease was reported from Arkansas. Earlier in the season the bacterial spot (Bacterium vesicatorium) was sent in from this district.

A specimen of fruit rot accompanying this report was determined by S. P. Doolittle of the Bureau of Plant Industry as nailhead rust due to Macrosporium tomato. Dr. Doolittle remarks that the lesions are of the large type which occasionally occur in the case of this disease, and there appears to have been a secondary infection probably due to Rhizoctonia which had produced a concentric ringing characteristic of the so-called soil rot.

A few growers were reporting an internal blackening similar to blossom-end rot but not visible from the outside. According to Dr. Doolittle, A. C. Foster, who is working on blossom-end rot, states that such internal lesions occur rather commonly without the development of visible symptoms on the surface of the fruit.

POTATO LATE BLIGHT IN MAINE

R. J. Haskell reports that abundant rainfall in Maine seems to have favored late blight (Phytophthora infestans) with the result that it was found well established and spreading to some extent in potato fields in parts of Piscataquis County August 9 and in Aroostook County August 12. Growers were actively spraying and dusting their fields in both these Counties. The results of the recent work of Dr. Bonde on mechanical injury of vines, late versus early spraying, and comparison of sprays and dusts are being used with good effect by county agents and growers.

ROOT ROT OF PEAS

Much trouble has been experienced this past season by home gardeners in New Hampshire and southern Maine in getting crops of garden peas. Although Aphis and to a slight extent leaf spot have been factors, the principal trouble seems to be root rot. Specimens of these plants were sent to J. C. Walker and the reply was received that the trouble was not the Fusarium wilt but apparently a type of root rot which has been unusually prevalent this year and which seems to be due to more than one factor. (R. J. Haskell).

DISEASES OF SPECIAL CROPS

TOBACCO LEAF SPOTS

E. E. Clayton, of the Division of Tobacco and Plant Nutrition, reports that the bacterial leaf spots have been practically absent this season in all the southern tobacco growing areas, due to a dry season. The fungus leaf spots, caused by Alternaria sp. and Cercospora nicotianae, on the other hand are more common than usual in South Carolina and Georgia. The Cercospora spot is also reported very prevalent in Burley tobacco in Tennessee. Damage from these troubles is slight. (August 29).

DISEASES OF FRUIT AND NUT CROPS

DISEASES OF PECANS

GEORGIA: Foliage diseases are doing damage to pecan trees, especially on old trees of the Stuart variety growing in unfavorable soil types or in crowded orchards. Brown leaf-spot (Cercospora fusca)

and downy-spot (Cylindrosporium caryigenum) fungi are doing most of the damage. There is already a slight casting of foliage in some Stuart orchards.

The Gnomonia leaf-spot disease is more prevalent this year than ever known. This disease is in some manner associated with rosette. I have failed to find it on trees not showing some symptoms of rosette; on the other hand not all rosetted trees are affected with the Gnomonia organism. It is significant, however, to note that rosetted trees that have been treated with zinc sulphate have only a few or no spots bearing the Gnomonia perithecia, while the foliage of untreated trees adjacent to the zinc treated ones is badly spotted. (J. B. Demaree, August 13).

LOUISIANA: I inspected a new seedling pecan at Mandeville carefully for diseases and the only disease I found was powdery mildew, (Microsphaera alni), which is prevalent on all varieties in Louisiana. (J. R. Cole, August 13).

DISEASES CAUSED BY NEMATODES

NEW HOSTPLANTS OF THE ROOT-KNOT NEMA, CACONEMA RADICICOLA: Rice (Oryza sativa), Echinochloa crus-galli and Polygonum lapathifolium, observed in a rice field in Stuttgart, Arkansas. (G. Steiner, E. C. Tullis, and Edna M. Buhrer).

TYLENCHUS DIPSACI ON COLCHICUM: Colchicum speciosum album, imported from Haarlem, Holland, were found infested by Tylenchus dipsaci. The disease seems to start near the base of the bulbs in shallow spots of a yellow to brown color which change to a grayish color. Decay seems to follow immediately and to destroy the root plate even in early stages of the infection. The disease must be very detrimental, judging from the samples seen. (G. Steiner, Edna M. Buhrer and D. P. Limber).

DISEASES OF TREES AND ORNAMENTALS

SUSCEPTIBILITY OF AMERICAN ELMS TO THE DUTCH ELM DISEASE

R. Kent Beattie

In her "Report of the phytopathological investigations on the elm disease conducted in the Laboratory Willie Commelin Scholten during 1931,"

Dr. C. J. Buisman lists the following inoculations of Graphium ulmi on American species of elm:

Ulmus americana, 4 inoculated, 4 positive; U. fulva, 27 inoculated, 26 positive; U. racemosa, 10 inoculated, 9 positive; U. alata, 2 inoculated, 2 positive; U. crassifolia, 3 inoculated, 1 positive; U. serotina, 5 inoculated, 5 positive.

It is apparent that Graphium ulmi if it became established in this country would find all the American elms highly susceptible.

Fortunately, to date, this year no cases of the Dutch Elm Disease have been found in the United States. (August 29).

REPORTS ON WILLOW SCAB

George L. Zundel sent in some specimens of willow attacked by scab (Fusicladium saliciperdum) with the following note:

"These specimens were collected along the Allegheny River in Warren County, Pennsylvania. I noted that practically 100 per cent of the tips on certain species of the willows were killed, presenting an appearance as if fire had run over the tops of the trees. I have sent some of this material to Dr. G. P. Clinton who identifies it as the willow scab fungus." (August 18).

In the Blister Rust News for August, C. C. Perry reporting from Massachusetts says that: "Damage resulting from the progress of the willow scab is again in evidence in southern Berkshire County with a center of optimum damage in the town of Stockbridge. The authorities in that town will, within a few years, be faced with the problem of clearing the roadsides of dead willows. It is only within a few years that our Massachusetts town authorities have finished the task of clearing the roadsides of dead chestnuts and now we may have another similar task, but one that will not be as general because of the limited distribution of the species as compared with the chestnut." (p. 156).

WINTER INJURY TO CHERRY LAUREL

Paul H. Millar of the Arkansas State Plant Board states that there are four or five small cherry laurel trees on the grounds of the Little Rock High School, some of which are dead and others in a dying condition. Sprouts are now coming from the roots, indicating that the seat of the trouble is not there. The trunks are constricted near the ground line. In the cases where the trees are dead, the constricted portion extends from the ground line up about two feet high. Sections of the trunks received from Mr. Millar were said by Dr. M. B. Waite to be affected by an extreme case of the collar girdle type of winter injury.

BLIGHT ON COTONEASTER IN THE EAST

In the August 15 issue of the Reporter (page 129) H. R. Rosen reported the occurrence of blight (Bacillus amylovorus) on Cotoneaster pannosa in Arkansas, apparently the first record of blight on Cotoneaster east of the Rockies. In connection with this report, L. R. Tehon writes that the Illinois State Natural History Survey has a report and specimen of blight on Cotoneaster racemiflora Koch from Western Springs, Cook County, Illinois, collected August 6, 1931.

The August issue of Nursery Disease Notes of the New Jersey Agricultural Experiment Station (vol. 5, no. 2, page 1) states that specimens of blight on Cotoneaster have recently been received from eastern States, and quotes one correspondent as follows: "These plants showed a die back when they came into leaf this spring and this has continued to the present time."

LEAF DISEASE OF NYMPHAEA

D. P. Limber of the Bureau of Plant Quarantine writes that in the summer of 1931 he found a fungus on a leaf of Nymphaea from Kenilworth, D. C., which he determined as Ovulariella nymphaearum (Allesch.) Kab. & Bub. (=Ovularia nymphaearum Allesch.) Judging from a drawing, Miss Edith Cash considered the fungus to be the same as the one reported from Seattle, Washington, in the August 15 issue of the Reporter (page 138).

ROOT AND CROWN ROT OF HERBACEOUS ORNAMENTALS

According to the August issue of the Nursery Disease Notes of the New Jersey Agricultural Experiment Station (vol. 5, no. 2, p. 1), the root and crown rot caused by Sclerotium delphinii is very severe this year on a wide variety of herbaceous annuals and perennials, including besides Delphinium, one of the most common hosts, Penstemon, aconite, perennial phlox, Valeriana, Pyrethrum, Ageratum, Funkia, and German iris. The explanation is thought to be, possibly, the excessive use of surface irrigation, which has been necessary on account of the drought conditions.